MONTHLY PROGRESS REPORT NO. 8 THERMOELECTRIC BONDING STUDY NASA Contract No. NAS5-3973

Covering Period from 1 March Through 31 March 1965

I. Accomplishments During the Period

A. Summary Report of the First Eight Months Effort

A detailed summary report covering progress from the inception of this program through the end of February 1965 has been prepared and submitted in draft form to the NASA technical representative. Publication will follow final NASA approval.

B. Thermoelectric Element Test Fixture

Effort during the month has been concentrated on this task. Preliminary design and layout drawings of the test system have been completed. The system will consist of four individually controlled inert atmosphere chambers, each capable of testing six thermoelectric elements at hot junction temperatures up to 1000° F and cold junction near room temperature. Provisions have been made for measuring hot and cold junction temperatures, voltage and power output, and element resistance.

C. Optimization of Braze Process

Extension of the previously developed braze process to PbSnTe material and to the brazing of samples of diameter other than one-half inch has been undertaken. Preliminary results are encouraging. Only minor difficulties are expected.

II. Future Work

- A. During the next period design of the thermoelectric test apparatus will be completed and construction will begin. Major laboratory emphasis will be placed on final optimization of the bonding process and preparation of a process specification.
- B. Fabrication of test samples will begin.
- C. The summary report on the first contract period will be published.

III. Costs

A copy of the billing on this contract for the month ending 4 April 1965 is attached.

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HITTMAN ASSOCIATES, INC. Baltimore, Maryland 21215

MAN 3402

Contract No. NAS5-3973

Voucher #9

Month Ending 4/4/65

	TOTAL DOLLAR AMOUNT	
Element of Cost	Current Costs	Cumulative Costs
Direct Labor	\$ 2,917.35	\$ 22,668.43
Overhead @ 117%	3,413.30	25,534.51
Total Direct Labor + Overhead	\$ 6,330.65	\$ 48,202.94
Materials and Other Direct Charges	161.25	6,229.93
Travel	33.57	126.73
TOTAL COSTS	\$ 6,525.47	\$ 54,559.60
Fee @ 7%	456.78	3,819.17
TOTAL BILLING	\$ 6,982.25	\$ 58,378,77